

# Analysis and comparison of the effective factors on implementation of knowledge management (Case study: Customs supervision office of Mazandaran Province)

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## Abstract

The main purpose of the study was the evaluation of the effective factors of implementation of knowledge management in Customs supervision office of Mazandaran Province from the viewpoints of managers and employees. The statistical population included all the managers and part-time or full-time employees of Customs supervision office of Mazandaran Province from which 125 people were selected. For data collection, researcher-made questionnaire was applied. In data analysis, descriptive and inferential statistics were applied. The results of the study showed that three factors of organizational culture, managers' support and preparation of the employees to implement knowledge management in Customs supervision office of Mazandaran Province were prepared and two factors of organizational structure and technological factors were considered less.

**Keywords:** Knowledge management, Organizational culture, organizational structure

## Introduction

It plays an important role in developed and developing countries. Indeed, the most important competition tool in present and future markets is knowledge and current use of knowledge plays an important role in development of the countries in the world to achieve competitive advantage. However, many organizations invested on knowledge development in various levels and they were successful but many other organizations failed. Due to the lack of correct mechanisms of evaluation and implementation of knowledge management, this type of

investment turned into extra costs in the mind of the managers (e.g. Balogun *et al.*, 2004).

In most of the organizations in Iran, due to the lack of a system making the employees obliged to first: documentation of the working experiences and second, providing up-to-date sciences of the jobs made the achievement of the knowledge of the implementation of the roles difficult. Most of the employees namely the

Managers applied the past procedure, experiences and knowledge and making the knowledge up to date due to the lack of applying knowledge management is impossible. The knowledge-based people or the people with valuable experiences are not considered more or they are not applied appropriately. Up-to-date knowledge in various fields makes the duties' time shorter and makes the decision making correct. It reduces the extra assumptions arising from the mistakes and allows the employees to work better, rapidly and correctly. This issue should be considered as one of the important resources in the organization and knowledge management and wisdom should be used in organizational structure to prevent the accumulation of knowledge in the library or in the mind of the employees as a supporter and increase the business knowledge in the organization and make the knowledge up-to-date and available for all the employees (e.g. Asgari, 2005).

It can be said that sharing knowledge and converting it in entire organization as organizational networks is one of the mechanisms facilitating the knowledge transfer and it promotes the organization capacity (e.g. Sykes and Treleaven, 2005)

The important point is that what are the effective factors on implementation of knowledge management in Customs supervision office of Mazandaran Province. In response to the question of organizational culture, the support of the managers, the preparation of the em-

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ployees and technological factors and organizational structure were evaluated. Also, there was a comparison between the views of the managers and employees of various regions in the province in this field.

### *Definitions of knowledge management*

Knowledge management is a complex concept and various theorists viewed it from different angles. Malhotra presented his definition of knowledge management as: "Knowledge management is the process by which the organizations achieve some skills regarding learning (knowledge internalization), knowledge coding (knowledge externalization) and knowledge distribution (e.g. Hales, 2000)

Steve Hales (2001) proposed the concept of knowledge management in relation with the information data concepts. He believed that the main problem in knowledge management is that the organizations do not know how to convert the data to information or to convert the information to knowledge. Most of the organizations remained at data management and information management level. Hales considered knowledge management as a process through which the organizations can convert the data to information and information to knowledge and they can use the achieved knowledge as effective on their decisions (e.g. Haines, 2001).

Haines (2001) considered knowledge management as a process based on four principles:

- 1- **Content:** Relate to the type of knowledge (tacit or explicit)
- 2- **Skill:** Achieving some skills to extract knowledge
- 3- **Culture:** The organizations culture should encourage knowledge and information distribution
- 4- **Organizing:** Organizing the existing knowledge (Haines, 2001).

Carl Wiig (2002) believed that knowledge management means creating the required processes for data, information and knowledge identification of the organization from the external and internal environment and transferring them to the decisions and actions of the organization and people (e.g. Wiig, 2002).

### *The infrastructure of knowledge management: Organizational culture*

Organizational culture is the method of doing the affairs in the organization for the employees. It is the similar perception of the organization being observed in the organization members and it shows the common features making the organization distinct from other organizations. In other words, organizational culture defines the social identity of each organization (e.g. Robbins, 1996).

The rapid changes in the work place made the organizations worried. This causes that the competition between the organizations is increased and according to some theorist, the only thing that can help the organizations is using the wisdom of the organization and guiding this wisdom to promote the affairs. The studies of Davenport and Prusak introduced 8 criteria for evaluation of success in the organizations in implementation of knowledge management projects. Based on these criteria, organizational culture is considered as the main index of evaluation of knowledge management success in the organizations as the success of knowledge management in the organization is contingent upon its compatibility with the organizational culture (e.g. Davenport and Prusak, 2000).

### *Organizational structure*

The organizational structure should have the required flexibility in order that the communication is not restricted to the team, department and organization and there is an easy communication with environment outside the organization for the employees. The informal aspect of organizational structure plays an important role in interaction development. Such communication provides the ground for achieving the knowledge of the groups outside of the organization (e.g. Manasco, 1997).

### *Study characteristics*

The present study aimed to identify the effective factors on knowledge management implementation in Customs supervision office of Mazandaran Province.

*research questions are as follows:*

- 1- Is there any difference between the views of the managers and employees regarding the consistency of organizational culture to implement knowledge management in Customs supervision office of Mazandaran Province?
- 2- Is there any difference between the views of the managers and employees regarding the support of managers of implementing knowledge management in Customs supervision office of Mazandaran Province?
- 3- Is there any difference between the views of the managers and employees regarding the preparation of the employees to implement knowledge management in Customs supervision office of Mazandaran Province?
- 4- Is there any difference between the views of the managers and employees regarding the consistency of technological factors to implement knowledge management in Customs supervision office of Mazandaran Province?

5- Is there any difference between the views of the managers and employees regarding the consistency of organizational structure to implement knowledge management in Customs supervision office of Mazandaran Province?

The statistical population was all full-employed and temporary employed employees of Customs supervision office of Mazandaran Province as 441 people. Through systematic random sampling, 118 people were selected as sample.

The research method was descriptive-survey. For data collection, a questionnaire was used with 30 questions. In this questionnaire, five-item Likert scale was used and the respondents were asked to state their comments about each question in accordance with the scores.

To determine the face validity, the questionnaire was given to some of the lecturers of humanistic and educational sciences. Then some of the items were eliminated or changed. Then, the reliability of the questionnaire was evaluated by initial test on a sample similar to the main sample but smaller than it. Thus, after providing the questionnaire, 50 copies were printed and completed by the respondents. Then, the collected data were coded and the reliability of the items was computed by Cronbach's alpha by SPSS software. By elimination of the inappropriate items and correction of ambiguous questions, the main questionnaire with 30 questions was provided.

### *The statistical methods of data analysis*

After the end of data collection and elimination of incomplete questions, 100 questionnaires were analyzed. For data analysis, descriptive statistics as one-dimensional table of absolute frequency distribution, relative frequency percent, mean and standard deviation were used and for inferential statistics t-test was used.

### *Data analysis*

The characteristics of the study population based on descriptive statistics

**Table 1. The frequency distribution of the subjects based on their organizational position.**

Subjects	Frequency (Number)	%
Managers	25	20%
Employees	100	80%
Sum	125	100%

**Table 2. The frequency distribution of the subjects based on their work place.**

Work place	Frequency (Number)	%
Customs office, central regions	65	52%
Customs office northern region	36	28.8%
Customs southern region	32	19.2%
sum	125	100%

**Table 3. The frequency distribution of the subjects based on their views about the organizational culture consistency to implement knowledge management.**

Items	Subjects	Low	Average	High	Sum	Mean	SD	Min score	Max score
Managers	F	0	2	23	25	25.3	3.01	17	30
	%	0%	8%	92%	100%				
Employees	F	3	34	65	100	23.2	4.8	12	25
	%	3%	34%	65%	100%				
Sum	F	3	34	88	125	3.6	4.6	12	35
	%	2.4%	27.2%	70.4%	100%				

**Table 4. The frequency distribution of the subjects based on managers' support to implement knowledge management.**

Items	Subjects	Low	Average	High	Sum	Mean	SD	Min score	Max score
Managers	F	0	5	20	25	21.6	3.2	14	28
	%	0%	20%	80%	100%				
Employees	F	10	29	61	100	19.1	5.2	6	29
	%	10%	29%	61%	100%				
Sum	F	10	34	81	125	19.6	5	6	29
	%	8%	27.2%	64.8%	100%				

**Table 5. The frequency distribution of the subjects based on preparation of the employees to implement knowledge management.**

Items	Subjects	Low	Average	High	Sum	Mean	SD	Min score	Max score
Managers	F	5	18	3	25	12.6	2.7	7	18
	%	20%	68%	12%	100%				
Employees	F	8	29	63	100	16.2	3.6	8	25
	%	8%	29%	63%	100%				
Sum	F	13	46	66	125	15.5	3.8	7	25
	%	10.4%	36.8%	52.8%	100%				

**Table 6: The frequency distribution of the subjects based on consistency of technological factors to implement knowledge management.**

Items	Subjects	Low	Average	High	Sum	Mean	SD	Min score	Max score
Managers	F	17	7	1	25	11.8	2.8	8	21
	%	68%	28%	4%	100%				
Employees	F	33	21	46	100	14.4	4.6	6	24
	%	33%	21%	46%	100%				
Sum	F	50	53	22	125	13.8	4.4	6	24
	%	40%	42.4%	17.2%	100%				

**Table 7. The frequency distribution of the subjects based on the effect of organizational structure to implement knowledge management.**

Items	Subjects	Low	Average	High	Sum	Mean	SD	Min score	Max score
Managers	F	19	6	0	25	10.9	2.2	7	16
	%	76%	24%	0%	100%				
Employees	F	43	47	10	100	13.3	3.9	6	22
	%	43%	47%	10%	100%				
Sum	F	62	53	10	125	12.8	3.8	6	22
	%	49.6%	42.4%	8%	100%				

### The analysis of the results based on inference statistics

In this section, each of the questions was evaluated by inference statistics as t-test, one-way variance analysis and Tukey test.

1- Is there any difference between the views of the managers and employees regarding the consistency of organizational culture to implement knowledge management?

According to the above table, t-test showed a significant difference between the mean score of the views of the managers and employees regarding the consistency of organizational culture to imple-

ment knowledge management in Customs supervision office of Province at confidence interval 95% ( $P=0.04$ ). Thus, based on the mean of managers and employees views regarding the consistency of organizational culture to implement knowledge management in Customs supervision office, it can be said that managers view compared to the employees of organizational culture to implement knowledge management in Customs supervision office of the province was more consistent.

2- Is there any difference between the views of the managers and employees regarding the managers' support to implement knowledge management?

**Table 8. The results of t-test for comparing the views of the managers and employees regarding the organizational culture consistency to implement knowledge management.**

Subjects	Number	Mean	SD	Degree of freedom	T value	Significance level
Managers	25	25.3	3.01	123	2.14	0.04
Employees	100	23.2	4.8			

**Table 9. The results of t-test of comparing the views of the managers and employees regarding the managers' support to implement knowledge management.**

Subjects	Number	Mean	SD	Degree of freedom	T value	Significance level
Managers	25	21.6	3.2	123	2.3	0.02
Employees	100	19.1	5.2			

According to the above table, t-test showed a significant difference between the mean score of the views of the managers and employees regarding the managers' support to implement knowledge management in Customs supervision office of Province at confidence interval 95% ( $P=0.02$ ). Thus, based on the mean of managers and employees views regarding the managers' support to implement knowledge management in

Customs supervision office, it can be said that managers support of implementation of knowledge management in Customs supervision office was more than the views of the managers compared to the employees.

3- Is there any difference between the views of the managers and employees regarding the preparation of the employees to implement knowledge management?

**Table 10. The results of t-test of comparing the views of the managers and employees regarding the preparation of the employees to implement knowledge management.**

Subjects	Number	Mean	SD	Degree of freedom	T value	Significance level
Managers	25	12.6	2.7	123	-4.6	0.001
Employees	100	16.2	3.7			

According to the above table, t-test showed a significant difference between the mean score of the views of the managers and employees regarding preparation of the employees to implement knowledge management in Customs supervision office of Province at confidence interval 95% ( $P=0.001$ ). Thus, based on the mean of managers and employees views regarding the preparation of the employees to implement knowledge manage-

ment in Customs supervision office, it can be said that the effect of preparation of the employees in implementation of knowledge management from the views of the employees was more compared to the managers view.

4- Is there any difference between the views of the managers and employees regarding the consistency of technological factors to implement knowledge management?

**Table 11. The results of t-test for comparing the views of the managers and employees regarding the consistency of technological factors to implement knowledge management.**

Subjects	Number	Mean	SD	Degree of freedom	T value	Significance level
Managers	25	11.8	2.8	123	-2.6	0.01
Employees	100	14.4	4.6			

According to the above table, t-test showed a significant difference between the mean score of the views of the managers and employees regard-

ing consistency of technological factors to implement knowledge management in Customs supervision office of Province at confidence interval 95%



( $P=0.01$ ). Thus, based on the mean of managers and employees views regarding the consistency of technological factors to implement knowledge management in Customs supervision office, it can be said that the consistency of technological factors to implement knowledge management from the

view of the employees was more compared to the managers view.

5- Is there any difference between the views of the managers and employees regarding the consistency of organizational structure to implement knowledge management?

**Table 12. The results of t-test of comparing the views of the managers and employees regarding the consistency of organizational structure to implement knowledge management.**

Subjects	Number	Mean	SD	Degree of freedom	T value	Significance level
Managers	25	10.9	2.2	123	-2.9	0.004
Employees	100	13.3	3.9			

According to the above table, t-test showed a significant difference between the mean score of the views of the managers and employees regarding consistency of organizational structure to implement knowledge management in Customs supervision office of Province at confidence interval 95% ( $P=0.004$ ). Thus, based on the mean of managers and employees views regarding the consistency of organizational structure to implement knowledge management in Customs supervision office, it can be said that from the view of the managers com-

pared to the employees, the organizational structure in implementation of knowledge management in Customs supervision office of the province was less consistent. In other words, the consistency of organizational structure to implement knowledge management was more from the view of the employees compared to the managers' view.

6- Is there any difference between the views of the subjects regarding the consistency of organizational culture to implement knowledge management in terms of their work place?

**Table 13. The comparison of the mean of the view of the subjects regarding the consistency of organizational culture to implement knowledge management in terms of their work place.**

Work place	N	Mean	SD
Customs office of central regions	65	23.58	3.9
Customs office of northern regions	36	24.86	4.32
Customs office of southern regions	24	21.67	6.09
Sum	125	23.58	4.6

**Table 14. The results of variance analysis of the consistency of organizational culture to implement knowledge management based on the work place of the subjects.**

Variance source	The sum of squares	Degree of freedom	The mean of squares	F value	Significance level
Inter-groups	146.94	2	73.47	3.61	0.03
Intra-groups	2483.4	122	20.36		
Sum	2630.37	124	--		

As it is shown in the above table, there is a difference between the mean of the view of the subjects working in central, northern and southern regions of customs office regarding the consistency of organizational culture to implement knowledge management. The results of one-way variance analysis showed that the observed difference between the mean of the view of the subjects working in central, northern and southern regions of customs office re-

garding the consistency of organizational culture to implement knowledge management was significant at confidence interval 95% ( $P=0.03$ ). Based on the means, it can be said that the consistency of organizational culture to implement knowledge management from the view of the subjects of northern regions of customs office (Rig, Genave, Deylam port customs) was more compared to the subjects of central and southern customs office. Tukey test

showed that there was only a significant difference between the view of the subjects working in northern and southern regions of customs office regarding the consistency of organizational culture to implement knowledge management at confidence interval 95% ( $P=0.02$ ). In other words, the consistency of organizational culture to implement knowledge

management of the view of the subjects of the customs office of southern region was less compared to the northern regions customs office.

7- Is there any difference between the views of the subjects regarding the support of the managers to implement knowledge management in terms of their work place?

**Table 15. The comparison of the mean of the view of the subjects regarding the support of the managers to implement knowledge management in terms of their work place.**

Work place	N	Mean	SD
Customs office of central regions	57	19.57	4.51
Customs office of northern regions	37	20.86	4.72
Customs office of southern regions	31	17.92	6.16
Sum	125	19.62	4.97

**Table 16. The summary of variance analysis of the manager's support to implement knowledge management based on the work place of the subjects.**

Variance source	The sum of squares	Degree of freedom	The mean of squares	F value	Significance level
Inter-groups	125.5	2	62.6	2.6	0.08
Intra-groups	2940.1	122	24.1		
Sum	3065.33	124	--		

As it is shown in the above table, although there is a difference between the view of the subjects working in central, northern and southern regions of customs office regarding the managers support of implementation of the knowledge management, the results of one-way variance analysis showed that the observed difference between the mean of the view of the subjects working in central, northern and south-

ern regions of customs office regarding the managers support of implementation of the knowledge management was not significant at confidence interval 95% ( $P=0.8$ ).

8- Is there any difference between the views of the subjects regarding the preparation of the employees to implement knowledge management in terms of their work place?

**Table 17. The comparison of the mean of the view of the subjects regarding the preparation of the employees to implement knowledge management in terms of their work place.**

Work place	N	Mean	SD
Customs office of central regions	57	15.62	3.44
Customs office of northern regions	37	16	3.94
Customs office of southern regions	31	14.33	4.24
Sum	125	15.48	3.76

**Table 18. The summary of variance analysis of preparation of the employees to implement knowledge management based on the work place of the subjects.**

Variance source	The sum of squares	Degree of freedom	The mean of squares	F value	Significance level
Inter-groups	42.48	2	21.24	1.51	0.22
Intra-groups	1712.72	122	14.04		
Sum	1755.2	124	--		

As is shown in the above table, although there is a difference between the view of the subjects working in central, northern and southern regions of customs office regarding the consistency of the preparation of the employees to implement the knowledge management, the results of one-way variance analysis showed that the observed difference between the mean of the view of the subjects working in central, northern and

southern regions of customs office regarding the consistency of the preparation of the employees to implement the knowledge management was not significant at confidence interval 95% ( $P=0.22$ ).

9- Is there any difference between the views of the subjects regarding the consistency of the technological factors to implement knowledge management in terms of their work place?

**Table 19. The comparison of the mean of the view of the subjects regarding the consistency of the technological factors to implement knowledge management in terms of their work place**

Work place	N	Mean	SD
Customs office of central regions	57	13.52	4.43
Customs office of northern regions	37	14.28	4.58
Customs office of southern regions	31	14.08	4.2
Sum	125	13.85	4.41

**Table 20. The summary of variance analysis of consistency of the technological factors to implement knowledge management based on the work place of the subjects.**

Variance source	The sum of squares	Degree of freedom	The mean of squares	F value	Significance level
Inter-groups	14.84	2	7.42	0.38	0.69
Intra-groups	2399.27	122	19.67		
Sum	2414.11	124	--		

As it is shown in the above table, although there is a difference between the view of the subjects working in central, northern and southern regions of customs office regarding the consistency of the technological factors to implement the knowledge management, the results of one-way variance analysis showed that the observed difference between the mean of the view of the subjects working in central,

northern and southern regions of customs office regarding the consistency of the technological factors to implement the knowledge management was not significant at confidence interval 95% ( $P=0.69$ ).

10- Is there any difference between the views of the subjects regarding the consistency of the organizational structure to implement knowledge management in terms of their work place?

**Table 21. The comparison of the mean of the view of the subjects regarding the consistency of the organizational structure to implement knowledge management in terms of their work place.**

Work place	N	Mean	SD
Customs office of central regions	57	12.69	3.43
Customs office of northern regions	37	12.77	4.36
Customs office of southern regions	31	13.29	3.82
Sum	125	12.83	3.77

**Table 22. The summary of variance analysis of consistency of the organizational structure to implement knowledge management based on the work place of the subjects.**

Variance source	The sum of squares	Degree of freedom	The mean of squares	F value	Significance level
Inter-groups	6.45	2	3.22	0.22	0.8
Intra-groups	1753.03	122	14.37		
Sum	1759.47	124	--		



As is shown in the above table, although there is a difference between the view of the subjects working in central, northern and southern regions of customs office regarding the consistency of the organizational structure to implement the knowledge management, the results of one-way variance analysis showed that the observed difference between the mean of the view of the subjects working in central, northern and southern regions of customs office regarding the consistency of organizational structure to implement the knowledge management was not significant at confidence interval 95% ( $P=0.8$ ).

## Discussion and conclusion

Recently, knowledge management is changed into an important issue. The scientific and business communities believe that the organizations by knowledge power can keep their long-term superiority in competitive fields.

The present study evaluated the effective factors on implementation of knowledge management in customs supervision office of Mazandaran province from the view of the managers and employees. After the review of literature and the field studies from the study sample, the following results were achieved: Three factors of organizational culture, managers' support and preparation of the employees to implement knowledge management in customs supervision office of Mazandaran province were provided and two factors of organizational structure and technological factors were less considered.

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